

1. A data processing apparatus for calculating a negotiation solution, the apparatus comprising:

an input module configured to receive an issue, a plurality of issue weights of a plurality of parties for the issue, and a plurality of options of the issue, the input module further configured to receive a plurality of option preferences of each option for each party;

a storage module configured to store the issue, the issue weights, the options, and the option preferences;

a computation module configured to calculate a plurality of weighted option preferences of each option for each party, wherein each weighted option preference is the issue weight of the party multiplied by the option preference of the party, the computation module further configured to calculate a sum of weighted option preferences for the issue by summing the weighted option preferences for each option of the issue, the computation module further configured to calculate a negotiation solution from the sum of weighted option preferences; and

an output module configured to display the issue, the options, an option set, and the negotiation solution.

2. The data processing apparatus of claim 1, wherein the computation module identifies the maximum of the sum of weighted option preferences for the issue.

3. The data processing apparatus of claim 2, wherein the computation module identifies the negotiation solution as the option set of the maximum of the sum of weighted option preferences, the computation module further calculating the sum the maximum of the sum of weighted option preferences of the issue to form a maximum combined utility.

4. The data processing apparatus of claim 3, the computation module configured to calculate the convexity of the negotiation, the convexity equal to the difference of the sum of the maximum of the sum of the weighted option preferences and one hundred per cent divided by the number of parties to the negotiation minus one.

5. The data processing apparatus of claim 1, the computation module configured to create at least one option set responsive to inputs of the negotiation issue, the issue weight, and the option, the output module configured to communicate the at least one option set to each party, the input module receiving a utility definition from each party in response to the option set, the computation module configured to calculate the option preference of each party in response to the utility definition.

6. The data processing apparatus of claim 1, wherein the computation module calculates a negotiation solution by selecting the option set with a minimum sum of weighted option preferences for the issue.

7. The data processing apparatus of claim 1, wherein the option preference is calculated according to multi-attribute utility analysis.

8. A system for calculating a negotiation solution, the system comprising:
- a data processing device configured to receive and display an issue, a plurality of options for the issue, and a plurality of parties, the data processing device further configured to receive and display an issue weight of each party for the issue, and an option preference of each option for each party;

- a server configured to receive the issue, the options, the parties, the issue weights, and the option preferences from the data processing device, the server further configured to calculate a plurality of sum of weighted option preferences as the sum of the products of the issue weight of each option for each party and the option preferences of each option for each party and to calculate a negotiation solution from the sum of weighted option preferences; and

- a network configured to communicate between the data processing device and the server.

9. The system of claim 8, wherein the server is further configured to calculate the maximum of the sum of weighted option preferences for the issue.

10. The system of claim 9, wherein the server is further configured to identify the negotiation solution as the option set of the maximum of the sum of weighted option preferences, the server further summing the maximum of the sum of weighted option preferences for the issue to form a maximum combined utility.

11. The system of claim 10, wherein the server is further configured to calculate the convexity of the negotiation, the convexity equal to the difference of the sum of the maximum of the sum of weighted option preferences and one hundred per cent divided by the number of parties minus one.

12. The system of claim 8, wherein the server is further configured to calculate a combined utility for an option set.

13. The system of claim 8, wherein the server is further configured to create at least one option set responsive to the issue, the issue weights, and the options, the server also configured to communicate the at least one option set to the data processing device, the data processing device communicating a utility definition to the server responsive to the at least one option set, the server further configured to calculate the option preferences responsive to the utility definition.

14. A process for calculating a negotiation solution, the process comprising:
 - identifying an issue;
 - determining a plurality of issue weights of the issue for a plurality of parties;
 - recording a plurality of options for the issue;
 - calculating a plurality of option preferences of each option for each party;
 - calculating a plurality of sum of weighted option preferences for the issue wherein the sum of weighted option preferences is the sum of the issue weight of each option for each party multiplied by the option preference of each option for each party; and
 - calculating a negotiation solution from the sum of weighted option preferences, the negotiation solution comprising an option set.
15. A process for calculating a sum of weighted option preferences for a negotiating issue, the process comprising:
 - multiplying a plurality of issue weights of a plurality of options for a plurality of parties by a plurality of option preferences of the plurality of options for the plurality of parties to form a plurality of weighted option preferences; and
 - summing the plurality of weighted option preferences of each option for each party of the issue to form a sum of weighted option preferences.
16. The process of claim 15, further comprising calculating the maximum of the sum of weighted option preferences for the issue.

17. The process of claim 16, further comprising identifying a negotiation solution of the option set of the maximum of the sum of weighted option preferences for the issue and summing the maximum sum of weighted option preferences to form a maximum combined utility.

18. The process of claim 17, further comprising calculating the convexity of the negotiation, the convexity equal to the difference of the sum of the maximum of the sum of the weighted option preferences and one hundred per cent divided by the number of parties minus one.

19. A computer readable storage medium comprising computer readable code configured to carry out a process for calculating a negotiation solution, the computer readable code configured to:

- identify an issue;
- determine a plurality of issue weights of the issue for a plurality of parties;
- recording a plurality of options for the issue;
- calculating a plurality of option preferences of each option for each party;
- calculating a plurality of sum of weighted option preferences for the issue wherein the sum of weighted option preferences is the sum of the issue weight of each option for each party multiplied by the option preference of each option for each party; and
- calculating a negotiation solution from the sum of weighted option preferences, the negotiation solution comprising an option set.

20. The computer readable storage medium of claim 19, further comprising computer readable code configured the sum of the maximum of the sum of weighted option preferences for the issue, wherein the sum of the maximum of the sum of weighted option preferences is the maximum combined utility.

21. The computer readable storage medium of claim 20, further comprising computer readable code wherein the negotiation solution is the option set of the maximum of the sum of weighted option preferences for each issue.

22. The computer readable storage medium of claim 19, further comprising computer readable code wherein the sum of the issue weights for a party is equal to one.

23. The computer readable storage medium of claim 19, further comprising computer readable code wherein the option preference is calculated according to multi-attribute utility analysis.

24. The computer readable storage medium of claim 19, further comprising computer readable code wherein the option preference is calculated according to hybrid conjoint analysis.

25. A computer readable storage medium comprising computer readable code configured to calculate a sum of weighted option preferences for an issue, the process configured to:

multiply a plurality of issue weights of a plurality of options for a plurality of parties by a plurality of option preferences of the plurality of options for the plurality of parties to form a plurality of weighted option preferences; and

sum the plurality of weighted option preferences of each option for each party of the issue to form a sum of weighted option preferences.

26. The computer readable storage medium of claim 25, further comprising computer readable code configured to calculate the maximum of the sum of weighted option preferences for the issue.

27. The computer readable storage medium of claim 26, further comprising computer readable code configured to identify a negotiation solution as the option set of maximum of the sum of weighted option preferences and to sum the maximum of the sum of weighted option preferences to form a maximum combined utility.

28. The computer readable storage medium of claim 27, further comprising computer readable code configured to calculate the convexity of the negotiation, the convexity equal to the difference of the sum of the maximum of the sum of weighted option preferences and one hundred per cent divided by the number of parties minus one.

29. The computer readable storage medium of claim 25, further comprising computer readable code configured to normalize the sum of the issue weights for the party to one.

30. An apparatus for calculating a negotiation solution, the apparatus comprising:

- means for identifying an issue;
- means for determining a plurality of issue weights of the issue for a plurality of parties;
- means for recording a plurality of options for the issue;
- means for calculating a plurality of option preferences of each option for each party;
- means for calculating a plurality of sum of weighted option preferences for the issue wherein the sum of weighted option preferences is the sum of the issue weight of each option for each party multiplied by the option preference of each option for each party; and
- means for calculating a negotiation solution from the sum of weighted option preferences, the negotiation solution comprising an option set.